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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/996,065	11/28/2001	Frank M. Zizzamia	098056/00120	1153
31013 7590 04/19/2007 KRAMER LEVIN NAFTALIS & FRANKEL LLP INTELLECTUAL PROPERTY DEPARTMENT I177 AVENUE OF THE AMERICAS NEW YORK, NY 10036			EXAMINER	
			RINES, ROBERT D	
			ART UNIT	PAPER NUMBER
			3626	
SHORTENED STATUTORY	Y PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)				
	09/996,065	ZIZZAMIA ET AL.				
Office Action Summary	Examiner	Art Unit				
	Robert D. Rines	3626				
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).						
Status						
1)⊠ Responsive to communication(s) filed on <u>05 Ja</u>	nuary 2007.					
·— ·	action is non-final.					
,						
closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.						
Disposition of Claims						
4) Claim(s) 1-20 is/are pending in the application.						
4a) Of the above claim(s) is/are withdrawn from consideration.						
5) Claim(s) is/are allowed.						
6)⊠ Claim(s) <u>1-20</u> is/are rejected.						
7) Claim(s) is/are objected to.	- alastian ranviromant	•				
8) Claim(s) are subject to restriction and/or	relection requirement.					
Application Papers						
9) The specification is objected to by the Examiner.						
10) ☐ The drawing(s) filed on is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.						
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).						
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).						
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.						
Priority under 35 U.S.C. § 119						
<ul> <li>12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).</li> <li>a) All b) Some * c) None of: <ol> <li>Certified copies of the priority documents have been received.</li> <li>Certified copies of the priority documents have been received in Application No</li> <li>Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).</li> </ol> </li> <li>* See the attached detailed Office action for a list of the certified copies not received.</li> </ul>						
Attachment(s)						
1) Notice of References Cited (PTO-892)	4) Interview Summary					
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date	Paper No(s)/Mail Da					

# **DETAILED ACTION**

#### Notice to Applicant

[1] This communication is in response to the amendment filed 5 January 2007. Claims 1-20 are pending.

### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- [2] Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Summerell et al. (United States Patent #5,937,387).

As per claim 1, Summerell teaches a system for calculating the contribution of each of a plurality of variables in a statistical model including a scoring formula for generating a score comprising: a database for storing values associated with at least some of the plurality of variables (Summerell et al.; col. 3, lines 19-41 and col. 8, lines 8-29), means for calculating a slope for any of the plurality of variables (Summerell et al.; col. 16, lines 13-35), means for calculating a

deviance value for any of the plurality of variables (Summerell et al.; col. 9, lines 62-67, col. 10, lines 1-16, and col. 16, lines 16-35) and means for calculating the contribution of any of the plurality of variables based on the calculated slope and deviance values (Summerell et al.; col. 16, lines 16-35 and Table 2).

As per claim 2, Summerell et al. teaches a system wherein the means for calculating the slope comprises a software module that takes the first derivative of the scoring formula with respect to the variable being analyzed (Summerell et al.; col. 8, lines 18-29 and col. 15, lines 35-55 and col. 16, lines 4-35).

As per claim 5, Summerell et al. teaches a system further comprising means for ranking the individual variables based on the calculated contribution (Summerell et al.; Table 2).

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## Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
- 2. Ascertaining the differences between the prior art and the claims at issue.
- 3. Resolving the level of ordinary skill in the pertinent art.
- 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- [3] Claims 6-14 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Summerell et al.

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As per claim 6, Summerell et al. teaches a system wherein the means for calculating a deviance value includes a software module that receives inputs for a mean value and a standard deviation value and the deviance value is calculated (Summerell et al.; col. 8, lines 9-29 and col. 10, lines 1-39).

While Summerell et al. teaches a system/method enabled by software applications (Summerell et al.; col. 8, lines 19-24) and Summerell further teaches applying a combination of mean values and deviation values for the purpose of determining relative contributions of a number of risk factors influencing the health risk associated with an individual (Summerell et al.; col. 10, lines 1-40 and col. 16, lines 4-35), Summerell et al. fails to explicitly state using the formula: 6 Deviance of x i = (x i - i) i where .mu..sub.1 is the mean for x.sub.1 and .sigma..sub.1 is the standard deviation for predictive variable x.sub.1.

However, because Summerell et al. applies the same variables and factors to calculations determining the overall risk associated with an individual as those set forth by the Applicant in the present application, Examiner interprets the above noted teachings of Summerell et al. to be functionally analogous to Applicant's use of a mean value and deviation values (and slope determined as a function of a variable) in determining the relative contribution of a number of risk factors to the overall risk associated with an individual. Accordingly, it would have been obvious to one of ordinary skill in the art to have applied the mean value and deviation values to an equation determining the relative health risk associated with an individual. The motivation to perform the calculations would have been to factor average survival probability data, including

recalibrating relative risks using the mean of a population and associated deviations, into determining a user's physiological age as a measure of the overall wellness of an individual (Summerell et al.; col. 10, lines 1-40 and col. 11, lines 13-39). Further motivation would have been to provide a system and method that supplies new statistics for calculating health and life insurance premiums (Summerell et al.; col. 5, lines 3-5)

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As per claim 7, Summerell et al. teaches a system wherein the contribution is calculated for any of the plurality of variables by multiplying the slope and deviance values (Summerell et al.; col. 16, lines 13-35 \*see analysis claim 6).

As per claim 8, Summerell et al. teaches a system that employs a statistical model comprised of a scoring formula having a plurality of predictive variables for generating a score that is representative of a risk associated with an insurance policyholder (Summerell et al.; col. 5, lines 2-18), a method of evaluating the contribution of each of the plurality of predictive variables to the score generated by the model comprising the steps of populating a database associated with the system with a mean value and standard deviation value for each of the plurality of predictive variables (Summerell et al.; col. 3, lines 19-41, col. 8, lines 8-19, col. 10, lines 1-16, col. 16, lines 16-35), calculating a slope value for each of the plurality of predictive variables (Summerell et al.; col. 16, lines 13-35), calculating a deviance value based on the mean value and the standard deviation value (Summerell et al.; col. 10, lines 1-39) for each of the plurality of predictive variables (Summerell et al.; Table 2), and multiplying the deviance value and slope value for each of the plurality of predictive variables to determine the contribution of each of the plurality

of predictive variables to the score (Summerell et al.; col. 16, lines 13-35 \*see analysis claim 6).

As per claim 9, Summerell et al. teaches a method further comprising the step of defining at least one assumption for the mean value associated with at least one of the plurality of predictive variables (Summerell et al.; col. 16, lines 16-18).

As per claim 10, Summerell et al. teaches a method wherein the step of calculating the slope further comprises the step of calculating the first derivative of the scoring formula with respect to the predictive variable of the plurality of predictive variables that is being analyzed (Summerell et al.; col. 16, lines 4-35).

As per claim 11, Summerell et al. teaches a method wherein the deviance value is calculated as follows: 7 Deviance of x i = (x i - i) i where .mu..sub.1 is the mean for x.sub.1 and .sigma..sub.1 is the standard deviation for predictive variable x.sub.i (Summerell et al.; col. 10, lines 1-39 and col. 16, lines 13-35 \*see analysis claim 6).

As per claim 12, Summerell et al. teaches a method further comprising the step of ranking each of the plurality of predictive variables based on the contribution of a predictive variable to the score wherein a predictive variable having a higher calculated contribution value is assumed to have had a greater effect on the score (Summerell et al.; col. 14, lines 20-42).

As per claim 13, Summerell et al. teaches a method of evaluating the contribution of each of the

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plurality of variables in a statistical model comprised of a scoring formula having at least one value associated with each of the plurality of variables comprising the steps of obtaining a mean value and a standard deviation value for each of the plurality of variables (Summerell et al.; col. 9, lines 62-67 and col. 10, lines 1-40), calculating a slope value for each of the plurality of variables (Summerell et al.; col. 16, lines 4-35), calculating a deviance value based on the mean value and the standard deviation value for each of the plurality of variables (Summerell et al.; col. 9, lines 62-67 and col. 10, lines 1-40), and multiplying the deviance value and slope value for each of the plurality of variables to quantify the contribution of each of the plurality of variables to the score (Summerell et al.; col. 16, lines 13-35 \*see analysis claim 6).

As per claim 14, Summerell et al. teaches a method further comprising the step of populating a storage means with the mean value and standard deviation values for each of the plurality of variables (Summerell et al., col. 3, lines 19-41, col. 8, lines 8-19, col. 10, lines 1-16, col. 16, lines 16-35).

As per claim 17, Summerell et al. teaches, in system that employs a statistical model comprised of a scoring formula having a plurality of predictive variables for generating a score that is representative of a risk associated with an insurance policyholder and for pricing a particular coverage based on the score, a method of quantifying the contribution of each of the plurality of predictive variables to the score generated by the model comprising the steps of populating a database associated with the system with a mean value and a standard deviation value for each of the plurality of predictive variables (Summerell et al.; col. 3, lines 19-41, col. 8, lines 8-19, col.

10, lines 1-16, col. 16, lines 16-35 and Table 2), calculating a slope value for each of the plurality of predictive variables (Summerell et al.; col. 16, lines 4-35), calculating a deviance value based on the mean value and the standard deviation value for each of the plurality of predictive variables (Summerell et al.; col. 9, lines 62-67 and col. 10, lines 1-40 and Table 2), and multiplying the deviance value and slope value for each of the plurality of predictive variables to quantify the contribution of each of the plurality of predictive variables to the score (Summerell et al.; col. 16, lines 13-35 \*see analysis claim 6).

As per claim 18, Summerell et al. teaches a method further comprising the step of ranking each of the plurality of variables based on the quantified contribution as calculated for each of the plurality of predictive variables (Summerell et al.; col. 14, lines 21-42 and Table 2).

As per claim 19, Summerell et al. teaches a method wherein the step of calculating the slope further comprises the step of calculating the first derivative of the scoring formula with respect to a predictive variable of the plurality of predictive variables that is being analyzed (Summerell et al.; col. 8, lines 18-29 and col. 15, lines 35-55 and col. 16, lines 4-35).

As per claim 20, Summerell et al. teaches a method wherein the deviance value is calculated as follows: 8 Deviance of x i = (x i - i) i where .mu..sub.i is the mean for x.sub.1 and .sigma..sub.i is the standard deviation for predictive variable x.sub.1 (Summerell et al.; col. 10, lines 1-39 and col. 16, lines 13-35 \*see analysis claim 6).

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Regarding claims 7-14 and 17-20, the obviousness and motivation as discussed with regard to claim 6 above are applicable to claims 7-14 and 17-20 and are herein incorporated by reference.

Claims 3-4 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over [4] Summerell et al. in view of Hele et al. (United States Patent Application Publication #2002/0116231).

Regarding claims 3-4 and 15-16, while Summerell et al. determines the overall health risk associated an individual as a function of an individual's calculated or estimated physiological age and further indicates that the performed calculations would be of assistance to an insuring entity when determining premiums for an insurance policy (Summerell et al.; col. 5, lines 3-13), Summerell et al. fails to specifically relate the health assessment score to a specific premium.

However, as is evidenced by Hele et al., the translation or a rating score or risk assessment score into a premium amount of class is well-known in the art (Hele et al.; paragraphs [0077] [0097]).

Accordingly, as per claim 3, Hele et al. teaches a system wherein the plurality of variables describe characteristics of at least one of an existing policyholder and potential policyholder and the scoring formula is used to generate a score reflective of the expected loss/premium ratio for an insurance policy (Hele et al.; paragraphs [0063] [0077] [0097]).

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As per claim 4, Hele et al. teaches a system wherein the premium for the insurance policy is based on the score (Hele et al.; paragraphs [0077] [0097]).

As per claim 15, Hele et al. teaches a method wherein the statistical model is used to assess the profitability of an insurance policy and each of the plurality of variables is associated with at least one of the policyholder and item to be insured (Hele et al.; paragraphs [0077] [0097]).

As per claim 16, Hele et al. teaches a method wherein a score generated by the model determines the price for the insurance policy and the contribution is used to identify which variables had the greatest effect on the price (Hele et al.; paragraphs [0028] [0063] [0064] [0077] [0097]).

Regarding claims 3-4 and 15-16, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined the teachings of Summerell et al. with those of Hele et al. Such combination would have provided a system/method that supplies new statistics for calculating health and life insurance premiums (Summerell et al.; col. 5, lines 3-15). Further, such a system/method would have applied a user's or policy holder's calculated age (Summerell et al.; col. 11, lines 24-29) to a quantitative rating figure that is directly applied to premium determinations regarding a policy holder or applicant for insurance (Hele et al.; paragraph [0063]). The motivation to combine the teachings would have been to facilitate the evaluation of an applicant's risk against underwriting criteria when creating insurance policies (Hele et al.; paragraph [0041]).

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Response to Remarks

Applicant's remarks filed 5 January 2007 have been fully considered but they are not persuasive.

The remarks will be addressed below in the order in which they appear in the response filed 5

January 2007.

Applicant remarks that teachings of Summerell et al. do not describe the system and method

defined by claim 1 of present application.

Specifically, Applicant remarks:

"Applicant's invention is directed to embodiments of a system and method for determining the

importance of variables that contribute to the overall score of a model for predicting the

profitability of an insurance policy."

Applicant further remarks:

"Summerell, which Applicants respectfully submit is non-analogous art, does not disclose,

suggest or yield the present invention as claimed in independent claim 1-- significant differences

exist between the system and method of the present invention for calculating the contribution of

each of a plurality of variables in a statistical model including a scoring formula for generating a

score and Summerell's system and method for determining a user's physiological age to create a

customized wellness plan that warrant the immediate withdrawal of the rejection of independent claim 1 on anticipation grounds."

In response, Examiner directs Applicant's attention to the applied passages of Summerell et al. in view of the teachings of Summerell et al. as a whole and particularly those at col. 4, lines 58-67 and col. 5, lines 1-18. In the above noted passages Summerell et al. indicates, "The present invention uses this data (wellness indicators, i.e., variables) to calculate the users' current wellness state which can be used to stratify a pool of insurance applicants and policy holders according to degree of wellness. Insurance enterprises can use this stratification level data to calculate premiums based on wellness." Examiner respectfully submits that Summerell's generation of a quantified wellness value constitutes both a score (solved) as well as a variable (unsolved) in an equation with specific application to insurance premium determination and profitability, at least insofar as present claimed by Applicant's claim 1. Given Summerell's use of a formula (i.e., "scoring formula") for determining a user's adjusted or physiological age (i.e., both a "variable" and a "score"), which includes the use of the score/value for determination of insurance premiums. Examiner respectfully submits that Summerell is not only analogous art but also includes a scoring formula that employs a plurality of variables (e.g., Summerell's wellness factors as well as Summerell's resultant age/score) that is further used for insurance premium determination (i.e., assessment or prediction of profitability).

Applicant remarks:

"Summerell nowhere teaches or suggests means for calculating the contribution of any of the plurality of variables based on the calculated slope and deviance values according to the present invention as affirmatively recited in independent claim 1 of the present application."

Applicant further remarks:

"Summerell is concerned with calculating physiological age for a user based on a user survival curve in order to create a customized wellness plan. Predetermined risk factors are used to modify the survival rate and mortality rate of the standard population in order to assess the physiological age of a user. The contribution of these relative risk factors is not calculated as part of the assessment of the physiological age. As a result, Summerell is not concerned with the importance of each contributing variable but is instead focused on the final end result of a calculated physiological age."

In response, as indicated in the preceding section of Examiner's response, Examiner considers Summerell's "physiological age" value to constitute both a "score" as well as a "variable". Accordingly, Examiner directs Applicant's attention to the applied teachings of Summerell et al., at col. 15, lines 35-67 and col. 16, lines 1-35. In the noted passages, Summerell et al. disclose a function/equation for determining a user's physiological age involving the steps of calculating a survival rate deviation (i.e., deviation value) and the slope of the disclosed function with respect

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to a variable (physiological age). Examiner respectfully submits that Summerell's use of slope

and deviance values in the determination of the physiological age constitute "...means for

calculating the contribution of any of the plurality of variables based on the calculated slope and

deviance values" under the broadest reasonable interpretation of the noted claim language.

Applicant remarks that independent claims 8, 13 and 17 and dependent claims 6-7, 9-12, 14, and

18-20 are not obvious in view of the teachings of Summerell.

Specifically, Applicant remarks:

"Summerell nowhere teaches or suggests multiplying the deviance value and slope value for each

of the plurality of predictive variables to determine the contribution of each of the plurality of

predictive variables to the score according to the present invention. Summerell is concerned with

calculating physiological age for a user based on a user survival curve in order to create a

customized wellness plan. Relative risk factors aré used to assess the physiological age of a user.

The contribution of these relative risk factors is not calculated as part of the assessment of the

physiological age."

Applicant additionally remarks:

"Summerell utilizes slope and deviance with respect to wellness factors to modify the survival

rate and mortality rate of the standard population in order to determine the physiological age of a

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user. The importance of the wellness factors to the resulting physiological age is never determined....In other words, Summerell merely uses deviance and slope to combine the individual contribution and effect of each wellness factor in order to derive the total impact on the survival rate of a user but never weights the contribution of the wellness factors."

In response, Examiner directs Applicant's attention to the applied teachings of Summerell et al. at col. 16, lines 13-35 in view of the collective teachings of Summerell and particularly those at col. 15, lines 18-67 and col. 16, lines 1-12. In the noted passages, Summerell describes an equation/formula that, as Applicant acknowledges, uses deviance and slope to combine the individual contribution and effect of each wellness factor in order to derive the total impact on the survival rate. Examiner submits that the equation provided by Summerell is setup and the associated calculations are performed with the intention of isolating and solving for the "physiological age" as the target variable. Examiner further submits that should one of ordinary skill in the art be provided with a value for the physiological age/variable (e.g., by empirical data gathered on a representative or mean population), the same equation would be rearranged to isolate and solve for a different factor/variable (e.g., an attribute risk adjustment). Accordingly, such mathematical rearrangement would be subject to the same application of slope and deviance, noted by Applicant, to solve for the new variable.

In support of the above interpretation, Examiner directs Applicant's attention to the teachings of Summerell at col. 9, lines 62-67 and col. 10, lines 1-39. In the noted passage, Summerell describes the use of a baseline group, ideally (preferred embodiment) using the mean population.

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to determine the relative adjustments (i.e., weighting) for a given attribute. Summerell additionally notes the relationship between attribute deviation and relative risk stating, "...the higher the deviation of the relative risk from the baseline, the more the attribute is a cause of mortality. Conversely, the lower the deviation, the less the attribute is a cause or marker of mortality" (Summerell et al.; col. 10, lines 3-10). Further, Summerell notes that the relative risks for each attribute are re-calibrated using the mean population (Summerell et al.; col. 10, lines 37-39). These teachings indicate to the Examiner that Summerell's determination of the risk/attribute adjustments is accomplished using the same equation rearranged to solve for a given risk adjustment/variable using empirical data from a mean population to establish the age adjustment. Lastly, Examiner submits that Summerell's determination of relative risk adjustments for a number of attributes constitutes weighting the relative contributions of each factor at least insofar as presently claimed by Applicant.

In conclusion, all of the limitations which Applicant disputes as missing in the applied references have been fully addressed by the Examiner as either being fully disclosed or obvious in view of the collective teachings of Summerell et al., and Hele et al., based on the logic and sound scientific reasoning of one ordinarily skilled in the art at the time of the invention, as detailed in the remarks and explanations given in the preceding sections of the present Office Action and in the prior Office Action (mailed 5 July 2006), and incorporated herein.

### Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert D. Rines whose telephone number is 571-272-5585. The examiner can normally be reached on 8:30am - 5:00pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on 571-272-6776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**RDR** 

JOHN W. HAYES
SUPPRISORY PATENT EXAMINER